

What is claimed is:

1. A printer apparatus comprising:

(a) an image-forming unit for forming an image to be transferred onto a recording material; and

5 (b) a fixing unit for fixing said image onto said recording material, said fixing unit including:

i) a heat-up roller;

ii) a heating section for heating said heat-up roller;

10 iii) a power supply section for supplying power to said heating section; and

iv) a heat controller for controlling said power supply section;

15 wherein said heat controller is in contact with an inner circumferential surface of said heat-up roller, and is thermally deformed at temperatures above a predetermined value and leaves said inner circumferential surface to interrupt power supply of said power supply section to said heating section.

20 2. The printer apparatus as set forth in Claim 1, wherein said fixing unit further includes a pressurizing roller.

3. The printer apparatus as set forth in Claim 2, wherein said fixing unit further comprises:

a fixing roller; and

25 a belt for engaging said fixing roller and said heat-up roller.

4. The printer apparatus as set forth in Claim 1, wherein said

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heat controller and said inner circumferential surface of said heat-up roller is a part of a power line to said power supply section.

5 The printer apparatus as set forth in Claim 1, wherein said heating section comprises:

an exiting coil; and

a metal provided on said heat-up roller and producing heat resulting from an electrical field of said exiting coil.

10 6. The printer apparatus as set forth in Claim 5, wherein said heating section further includes an exiting coil core having a plurality of openings.

15 7. The printer apparatus as set forth in Claim 1, wherein said heat controllers are disposed at both ends of said heat-up roller in longitudinal direction thereof.

20 8. The printer apparatus as set forth in Claim 1, wherein said heat controller includes a bimetal.

9. The printer apparatus as set forth in Claim 8, wherein said heat controller includes another bimetal formed of a different bimetal material.

25 10. The printer apparatus as set forth in Claim 1, wherein a dimension of said heat controller in a longitudinal direction of said heat-up roller is longer than a dimension perpendicular to the longitudinal direction.

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11. The printer apparatus as set forth in Claim 1, wherein said heat controller includes a protrusion formed on a tip thereof that is in contact with the inner circumferential surface of said heat-up roller.

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12. The printer apparatus as set forth in Claim 11, wherein said protrusion is rounded.

13. The printer apparatus as set forth in Claim 11, wherein one of silver and platinum is crimped over said protrusion.

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14. The printer apparatus as set forth in Claim 1, wherein each of plurality of said heat controllers is provided opposite to another one of said heat controllers.

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15. The printer apparatus as set forth in Claim 1, wherein said heat controller slides in said heat-up roller.

16. The printer apparatus as set forth in Claim 3, wherein said fixing unit further includes a temperature-detecting section in proximity to a fixing nip portion.

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17. The printer apparatus as set forth in Claim 16, wherein said temperature-detecting section is disposed on a back face of said belt of said printer apparatus.

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18. The printer apparatus as set forth in Claim 3, wherein said belt includes:

a heat-resistant base layer; and

a surface layer made of an elastic material that covers a surface of said base layer.

5 19. The printer apparatus as set forth in Claim 18, wherein a thickness of said base layer is 10 μm to 250 μm .

20. The printer apparatus as set forth in Claim 18, wherein a thickness of said surface layer is 30 μm to 400 μm .

10 21. The printer apparatus as set forth in Claim 18, wherein said base layer is a ferromagnetic metal.

22. The printer apparatus as set forth in Claim 21, wherein a
15 thickness of said metal is 10 μm to 60 μm .

23. The printer apparatus as set forth in Claim 3, wherein said fixing roller includes:

a metallic core; and

20 an elastic portion for covering said metallic core with silicon rubber.

24. The printer apparatus as set forth in Claim 23, wherein a thickness of said elastic portion is 3 mm to 8 mm.

25 25. The printer apparatus as set forth in Claim 3, wherein an outer diameter of said fixing roller is larger than an outer diameter of said heat-up roller.

26. The printer apparatus as set forth in Claim 3, wherein a hardness of a surface layer of said fixing roller is 15 ° to 50 ° in Asker C hardness.

27. The printer apparatus as set forth in Claim 2, wherein said
5 pressurizing roller includes:

a metallic core; and

a surface layer that is an elastic portion provided on a surface
of said metallic core.

10 28. The printer apparatus as set forth in Claim 3, wherein said
pressurizing roller includes:

a metallic core; and

a surface layer that is an elastic portion provided on a surface
of said metallic core;

15 wherein a thickness of said elastic portion is smaller than a
thickness of a elastic portion of said fixing roller.

29. The printer apparatus as set forth in Claim 28, wherein a
thickness of said elastic portion is 2 mm to 5 mm.

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30. The printer apparatus as set forth in Claim 3, wherein an outer
diameter of said pressurizing roller is substantially identical with an outer
diameter of said fixing roller.

25 31. The printer apparatus as set forth in Claim 3, wherein said
pressurizing roller has an outer diameter of substantially 30 mm.

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32. The printer apparatus as set forth in Claim 3, wherein a surface layer of said pressurizing roller is harder than a surface layer of said fixing roller.

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33. The printer apparatus as set forth in Claim 2, wherein a hardness of a surface layer of said pressurizing roller is 20 ° to 60 ° in Asker C hardness.

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34. A printer apparatus comprising:

(a) an image-forming unit for forming an image to be transferred onto a recording material; and

(b) a fixing unit for fixing said image onto said recording material, said fixing unit including:

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i) a heat-up roller;

ii) a heating section for heating said heat-up roller;

iii) a power supply section for supplying power to said heating section; and

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iv) a heat controller for controlling said power supply section;

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wherein said heat controller is in contact with an inner circumferential surface of said heat-up roller, rotates together with said heat-up roller, and is thermally deformed at temperatures above a predetermined value and leaves said inner circumferential surface to interrupt power supply of said power supply section to said heating section.

35. The printer apparatus as set forth in Claim 34, wherein said

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fixing unit has a rotating shaft that is coupled to a flange section rotating together with said heat-up roller, and said rotating shaft includes a ring-like electrode.

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